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ABSTRACT

Many students in the United States do not possess a sound geographic vocabulary. This study compared two instructional methods, drill and varied activities, that might be used to develop that vocabulary. Eighth-grade social studies classes at three sites (one urban, one rural, and one transitional) were used to assess learning of the 50 United States and 50 prominent world places over a period of four weeks. The students were divided into three experimental groups: those who received drill instruction, those who received varied activity instruction, and a control group who received no instruction. All groups were given a pretest and a posttest consisting of outline maps of the United States and the world with numbered locations to be identified. The drill and activity groups received the same amount of instructional time, only the methods varied. Both methods of instruction were proven effective, but drill was apparently the better method. Tables and graphs present the statistical findings. The pretests and posttests are also included. The document concludes with a 37-item bibliography. (JB)

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DRILL V. VARIED ACTIVITY METHODS OF TEACHING GEOGRAPHIC PLACE VOCABULARY

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Southeast Regional Conference for the Social Studies
(National Council for the Social Studies)
Francis Marion Hotel
Charleston, South Carolina
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This paper is concerned with teaching a geographic place vocabulary to eighth-grade students using two experimental teaching methods, traditional drill and varied activities. I will attempt to explain the problem, state hypotheses, briefly review pertinent literature, explain procedures, state findings and propose some conclusions. Finally, I will attempt to answer any questions you might have.

Introduction

During graduate studies the fact that many students do not possess a sound geographic place vocabulary (Helgren, 1983) came to my attention. Subsequent investigation showed that only one study during this century had attempted to evaluate the teaching/learning of a geographic place vocabulary (McKenzie & Sawyer, 1985).

An awareness of the importance of knowledge about places and for understanding people and events, such as reported by the news and entertainment media, fostered a study of how that knowledge might be developed. Two instructional methods were selected: one, drill, because it was ancient and largely abandoned since it had a "dehumanizing effect" (Button & Proveyo, 1983); the other quite modern, varied activities, supported by research which indicated its effectiveness for fostering high achievement (Rosenshine, 1971).

This study was quasi-experimental, using intact eighth-grade social studies classes to assess with a pretest treatment - posttest format, the learning of the 50 United States and 50 prominent world places, over a period of four weeks. Because of the limited representativeness of some studies reviewed, three different sites were selected for this study: They were urban (inner-city), transitional (small-town) and rural.

Hypotheses used in the investigation of geographic place vocabulary instruction were eight in all:

H_{01} There will be no significant difference among world posttest means of experimental and control groups.

H_{02} There will be no significant difference among world delayed posttest means of experimental and control group.

H_{03} There will be no significant difference among United States posttest means of experimental and control groups.

H_{04} There will be no significant difference among United States delayed posttest means of experimental and control groups.

H_{05} There will be no significant difference among sites one, two and three on world posttest means.

H_{06} There will be no significant difference among sites one, two and three on United States

posttest means.

H_{07} There will be no significant interaction among sites and groups on world posttest means.

H_{08} There will be no significant interaction among sites and groups on United States posttest means.

Testing revealed that we indeed had subjects who were quite different from site to site. It produced evidence that both types of instruction are effective though one appears to have advantages. Statistical analysis also indicated that there was interaction between sites and treatments.

Literature

Literature relating to three areas, with which this study was concerned, were reviewed in preparation for the study. The areas were the type of learning related to developing a geographic place vocabulary; our current knowledge about geographic place vocabulary; and our knowledge about the effectiveness of two methods for teaching such factual information.

Learning

The first question addressed was, what type of learning is involved in the acquisition of a geographic place vocabulary. Learning to identify a geographic place by its configuration, relative location, and name may be a type of leaning referred to as associative learning. According to

Cofer (1976), "Association theory has guided the greater part of research that has been done on human learning and memory" (p.37). Much teaching, like this study, is aimed at developing the ability of students to associate particular responses to specific stimuli.

Research relating to association learning goes back to Pavlov's (1928) classical-conditioning experiments with animals. Several studies since that time have reported findings which bear upon the present investigation. Gatz and Jacoby (1974) found that retrieval cues, when similar in final and initial learning experience, facilitated recall. Paivo (1969) observed that concreteness of stimuli greatly increased response quality. Read and Barnsley (1977) discovered that pictorial plus verbal material was associated more accurately than when either of the two was used alone. Finally, Duncan, Whitney and Kunen (1982) reported that the ability to associate verbal and visual stimuli increases with increased maturity. Since it appeared that we know something about how people learn similar facts, the next step was to explore geographic place vocabularies.

Geographic Place Vocabulary

The previous findings led to an investigation of the question of what is the present state of knowledge about geographic place vocabulary. The lead in the pursuit of knowledge about place vocabulary appears to have been taken

by Rugg and Hockett (1925). They documented the poor state of students' knowledge at Stanford University and in Chicago's elementary schools. Their assessment of the problem was that there existsted, "An undiscriminating attempt to teach a multitude of facts without regard for their relative importance of difficulty; and a lack of provision for repetition, for planned recurrence either with definite practice or in varied stimulating settings" (p.3). This was my impetus to use drill and varied activities for instruction. Fine (1951) and Helgren (1983) followed with further documentation of inadequate geographic place vocabularies possessed by students.

Saveland (1980) assessed the place vocabulary of 13-year-old students, the age of most eighth-graders, from 14 countries. Approximately 300 subjects were selected from each of the countries. The test consisted of 50 items, agreed upon as important by experts in the participating countries. Items included oceans, countries and cities. Place names were listed on an answer sheet, which had blanks beside each place. The name of each place corresponded with a number on a world outline map. Students were to write the map numbers on the answer sheet blanks. Findings were reported as mean results which were related as percent of items correct: Norway's students scored 33.3% correct; Canadian students scored 26.4%; Japanese students had a mean of 20.6%; Iraq 35.4% correct; Netherlands student mean was

30.3%; in the USA the mean was 24.7%; Venezuela had 19.5% correct; New Zealand students had 32.3% correct; Ireland 28.3%; Mexico 23.3%; Nigeria 16.1%; and Brazil 13.7% correct. Poland reported 71.8% of its participating students achieved a score of between 41 and 50; and India reported 17.9% of its participating students as achieving the same range of scores.

Saveland observed that the United States and Canada were in the median position, on the test. Developing countries such as Brazil, had the largest number of students in the lower score ranges. Oceans and seas were best known. Cities were generally better known than countries. Correlation of television viewing habits and test scores was generally reported by countries as inconclusive because of the broad range of uncontrollaole variables, such as the nature of programs watched. Saveland concluded that students did not choose to memorize place names because they were not cognizant of their potential impact upon the lives of the students. Saveland's test instrument was selected as a model for tests utilized in this investigation.

Since students appeared to have poorly developed place vocabularies and there seemed to be concern about it, the question was, were students being taught that information. The logical place to look was the textbook, the center of much classroom teaching. Therefore, it appeared reasonable to assume that textbook emphasis would result in those

emphasized facts and concepts being taught and learned. The lack of place knowledge among student led us to think there is little emphasis on place location in textbooks. Evidence, however, is to the contrary. Among those who evaluated textbooks, Hawkins (1977) most recently reported his findings after examining three textbook series containing a total of 18 books for first through sixth grades. He reviewed the teachers' guides and textbooks noting the occurence of map and globe activities in 12 categories. The categories included such items as locating specific places, finding specific locations on a grid, and using longitude to compute time differences. The tabulation revealed four common elements in testbook series:

(1) Emphasis on locating specific places.

(2) Lack of material for finding directions and locations via a map grid.

(3) Emphasis on map key for information instead of inferring, predicting, and drawing conclusions.

(4) Lack of reinforcement of skills from grade to grade after introduction.

Other writers throughout this century have proposed lists of places which might be taught (Burnham, 1939; Fuson, 1970; Rugg & Hockett, 1925), and systematic approaches to teaching geographic map concepts (Barthurst, 1961; Hawkins & Larkins, 1983; Kracht, 1978).

Experimental studies about geographic places were reported by some authors. Sieel, Herman, Allen and Kirasic (1979) explored the spatial knowledge development of students for small and large-scale spaces, while Evans and Pezdek (1980) investigated the knowledge of students about environmental location and distance. However, McKenzie and Sawyer were the only investigators to consider how a specific geographic place vocalary might be taught to students.

McKenzie and Sawyer (1985) conducted the only study which was directly concerned with teaching and learning place vcabulary. Their study was quasi-experimental involving four intact fifth-grade classes. The Iowa test was used in order to spread 92 students, by performance, evenly between groups. Race was distributed 50% white, 50% black. The purpose of the research was to evaluate baseline, the application of repeated testlike practice, mnemonics, and a combination of mnemonics and testlike practice in teaching pupils to match proper names of places with landmarks on unlaoled maps. The pocedure utilized a portion of the student's text, with which the student had little familiarity, in teaching geographic place vocabulary. There were 14 proper names and landmarks. The instructor for all students was from a local university.

After each treatment students were tested on the 14 places. Place names were numbered and printed in alphabetic

order on the left of the test page. A reproduction of the text map, with names omitted and circles substituted at each location was the test instrument. Pupils were to write the number of the place name in each circle. One week later the same test was given to test long term memory.

Two-way analysis of variance for unequal group sizes indicated significant differences among groups ($p<.01$). Mean scores for posttest and delayed posttests were reported as 6.89 and 4.06 for baseline, 9.0 and 6.73 for testlike practice, 9.5 and 8.35 for mnemonics, and 12.27 and 10.57 for the combined method.

McKenzie and Sawyer concluded that their study, "Demonstrates that a method which combines mnemonics with testlike practice has an extremely powerful and apparently additive effect on pupil learning in this particular kind of lesson" (p.14). That sounded like a vote for varied instruction.

Teaching

Two instructional methods, suggested by Rugg and Hockett (1925) and others, were selected for this study.

Drill

The earliest records we have about teaching methods reveals that teachers have utilized repetition as a teaching tool for a long time. Plato and Aristotle referred to

developing good habits through repetition (Ulich, 1968). Following the Greeks, Romans such as Plutarch, in 100 AD, utilized drill teaching. Mayer (1960) noted that, "Teachers stressed repetition, and students were instructed and encouraged to imitate the teacher" (p.67). He noted the use of drill in instructional practices in China and India 2000 years or more years ago. Mayer also included St. Ignatius Loyola (1491-1556 AD), John Locke (1632-1704 AD), and Ralph Waldo Emerson (1803-1882 AD) as supporting the use of drill.

Near the turn of the century, 1892, Joseph Mayer Rice toured schools in 36 American cities. Following his tour, he published an article in which he made the following criticism, "The principal's ideal lies in giving each child the ability to answer without hesitation upon leaving her school, every one of the questions formulated by her. In order to reach the desired end, the school has been converted into the most dehumanizing institution that I have ever lain eyes upon, each child being trained as if he possessed a memory and the faculty of speech, but no individuality no sensibilities, no soul" (Button and Proveyo, 1983, p.200). His published observations may have been instrumental in bringing drill into a position of disfavor for many, if not most educators.

Samuel Parker (1919), nonetheless, provided one of the clearest approaches to and defenses of drill teaching. He suggested the following procedure: 1-start correctly; 2-do

not waste time; 3-secure student interest and enthusiasm; 4-organize; 5-continue drill until the desired goal is met; and 6-practice using abstract forms in concrete situations. He concluded by writing, "First - The social necessity and value of these forms of skill has been shown by precise, objective studies of social activities in the world at large. Second - Children manifest the mose intense interest in abstract drills which are so organized as to appeal to their instinctive interests in games and emulation, without recourse to any other motive. Third - Ten minutes a day of such socially valuable, interesting, well-organized drills have proved sufficient in each subject to maintain high degrees of skill, most of which transfers to concrete situations" (p.264).

Dewey and Kilpatrick, during much the same period of time were proposing that students be provided with learning experiences which were more democratic in nature. In 1934, Kilpatrick proposed what he called the activity method. Learning was to be initiated by the student and aimed at producing meaningful experiences. He criticized drill as fixed, habituated responses which would not suffice in this ever changing world.

Research concerning the effectiveness of drill has been mainly confined to typing, language instruction and mathematics (Overton, 1978; Morrey, 1970; Heeler, 1975; Crist, 1968; Davidson, 1975). No research study has compared

teaching geographic place vocabulary to students using drill instruction.

Varied Activities

Rosenshine (1971) reported on instructional flexibility and variety. He found that, "Flexioility has long been honored as a characteristic of effective teachers" (p.137). His review of research concerned the use of varied instructional methods by teachers through 1970. Rosenshine reported that ratings of teacher flexiolity or enrichment were consistently significant in seven of eight studies reviewed. Two additional studies reported the importance of variation in maintaining student attention. He observed that when flexibility was defined by researchers, as variation in a teachers cognitive behavior, richness and variety of instructional materials and activities, results in student achievement were consistently significant. Rosenshine concluded by recommending future study of variation. The preceeding review presented by this author led to the following study.

Procedures

Design ten of Campbell and Stanley (1963, pp.47-50) quasi-experimental designs was selected for this study. The rsearch compared achievement of experimental grouos, drill - activity - control, and utilized pretest posttest data from

intact classrooms. Procedurally, the experiment followed a test, treatment, retest pattern.

Treatments

Experimental subjects were treated in pre-existing classroom groups, in three different ways. Treatments were assigned randomly with the aid of a table of random numbers (Kendall & Smith, 1938). The length of instructional time for all experimental groups was identical.

Experimental Group - Drill

Students in drill groups received 25 minutes of specific instruction twice weekly for a four week period between the pretest and posttest. During each period the teachers used geographic places from the pretests as drill for imoroving students' place vocabulary. Drill was conducted in essentially the same manner day after day. Typically, the teacher pointed to a olace on a map which was projected, via overhead projector. The world map was divided into sections, such as the Americas, Europe, etc. Then the teacher pointed to a place which was identified in chorus, by the class. The process was repeated, section by section until all world places were identified. Next individual students were called upon to identify specific places on the world map. The United States was then covered in the same way. This procedure was repeated each treatment period.

Experimental Group - Control

Control students received pretest but no place vocabulary instruction during the interval of time between the pretest and the posttest.

Experimental Group - Varied Activity

Students in activity groups received the same amount of instructional time as the drill groups. During each period, teachers taught geographic places by the use of various activities. For the subjects in this group, each day was somewhat different:

Day one - From a list of places to be learned, students selected one place at a time and wrote a sentence describing the location and shape of that particular place (in the United States). Wall maps and globes were on display in the classroom.

Day two - Descriptions were done in much the same way as on day one; however, the world map was used for locating and describing places. Maps and globes were on display.

Day three - Students were provided with puzzles of the world and the United States. Places were numbered on the puzzles. Notebook paper was numbered from one to 50 for the United States, and the same was done for the world. Students were then assigned randomly to groups of five or six members. Those

groups were to work cooperatively in naming all locations in the allotted time period. No maps or globes were on display.

Day four - This procedure required students to categorize places according to some common locational characteristic: Those in or close to the Atlantic Ocean, Pacific Ocean, Indian Ocean, Caribbean Sea, Mediterranean Sea, land locked, and others. Maps and globes were on display.

Day five - A freenand map of the United States was to be drawn on a piece of notebook paper. Political divisions of those places used in this study were to be drawn in, and the names of those places were to be labled. Maps and globes were on display.

Day six - Students were to draw another freehand map. The world was the object of the drawing. It was to be politically divided for places pertinent to this study. The places in the world study were to be named. Maps and globes were on display.

Day seven - Classes were randomly divided in half for a game. Students were then given a description of a place orally by the teacher and asked to name the place. Somewhat like a spelling bee, the two halves of classes competed for correct responses. Descriptions of places were taken from student

descriptions of days one and two. On day seven, places in the United States were the object of the game. No maps or globes were on display in the classroom.

Day eight - Basically, day eight was a repeat of day seven, except world places were described instead of the United States places. No maps or globes were on display.

Instrumentation

Two separate outline maps were selected for use in this experiment, one was of the world and the other was of the United States. I selected the two maps because I considered it reasonable to expect eighth-grade students to recognize significant places in both the world and United States since many of those places were a part of the students's school curriculum.

World

Saveland's (1980) world outline map was selected because of its extensive international use and acceptance (see Table 1 and Table 2). Place numbers on the posttest were put in different sequence after the pretest, but, the same map projection was retained. An accompanying answer sheet had blanks in which students were to write correct numbers from the outline maps, beside place names.

Table 1

Prof. Robert N. Saveland

Precest

THE WORLD

Your number___ Date___ Group___ Period___ Sex___

About how many hours do you watch television a week?

Mon___ Tues__ Wed__ Thur__ Fri__ Sat__Sun__ =Total_____

Match each number on the map by putting a number in each blank space below.

Oceans and Seas (numbers 1-5)

___Arctic Ocean ___Caribbean Sea ___Mediterranean Sea

___Atlantic Ocean ____Indian Ocean

Countries (numbers 6-37)

___Algeria ___France ____Saudi Arabia

___Argentina ___India ____South Africa

___Australia ___Indonesia ____Spain

___Brazil ___Iran ____Sweden

___Canada ___Italy ____Turkey

___Chile ___Japan ____United Kingdom (England)

___China ___Mexico ____USSR (Soviet Union)

___Colombia ___Nigeria ____United States

___Cuba ___Peru ____Yugoslavia

___Egypt ___Philippines ____Zaire (Belgian Congo)

___Ethiopia ____Poland

Cities (numbers 38-50)

___Buenos Aires ___London ____Paris

___Cairo ___Mexico City ____Beijing (Peking)

___Calcutta ___Moscow ____Rio de Janeiro

___Johannesburg ___New York ____Sydney

____Tokyo

World Selection Criteria

Place selection criteria on the world map, used by Saveland and his associates, were appropriate for this project and are lested below:

Oceans - "Oceans were chosen in order to learn if students grasped the distinction between land and water on a black and white outline map" (Chapter 2, p.1).

Countries - Saveland first considered using all 153 members of the United Nations but finally, "The decision was made to use those over four million population and 500,000 square miles (1,295,000 square kilometers) of area" (Chapter 2, p.1

Cities - "The two largest cities on each continent (except Antarctica) and the largest city in Australia were selected. Two more cities were then added, one in Europe and one in Asia, to bring the total test items to fifty" (Chapter 2, p.1).

Map - "Lawrence Fahey's meridian map (world ourline) was selected because it was a very pleasing oval projection map which was equal area and conformal, showing size relationships and shapes with relative accuracy" (Chapter 2, p.3).

Content Validity for the World Instrument

Coordinators in various countries cooperated in the selection of places in the Saveland study (1980). The content validity of world places was judged by project coordinators in 14 countries. The judgement of the international social scientists was acceptable for the present study.

United States

I designed a test, similar in format to the Saveland test, in which states of the United States were the places (see Table 3 and Table 4). A black and white outline map of the states of the United States was selected (United States Map Outlines, 1970). The map was selected because it was typical of available U.S. outline maps which clearly delineated political boundaries of states. States were each given a number on the pretest map; then the number was changed for the posttest instrument. Place order on the answer sheets were also rearranged between the pretest and the posttest.

Content Validity of the United States Instrument

Content validity of the United States places was judged by ten people: the experimenter, Professor Saveland, and those teachers who were involved in the study. They unanimously agreed that it was reasonable to expect

Pretest

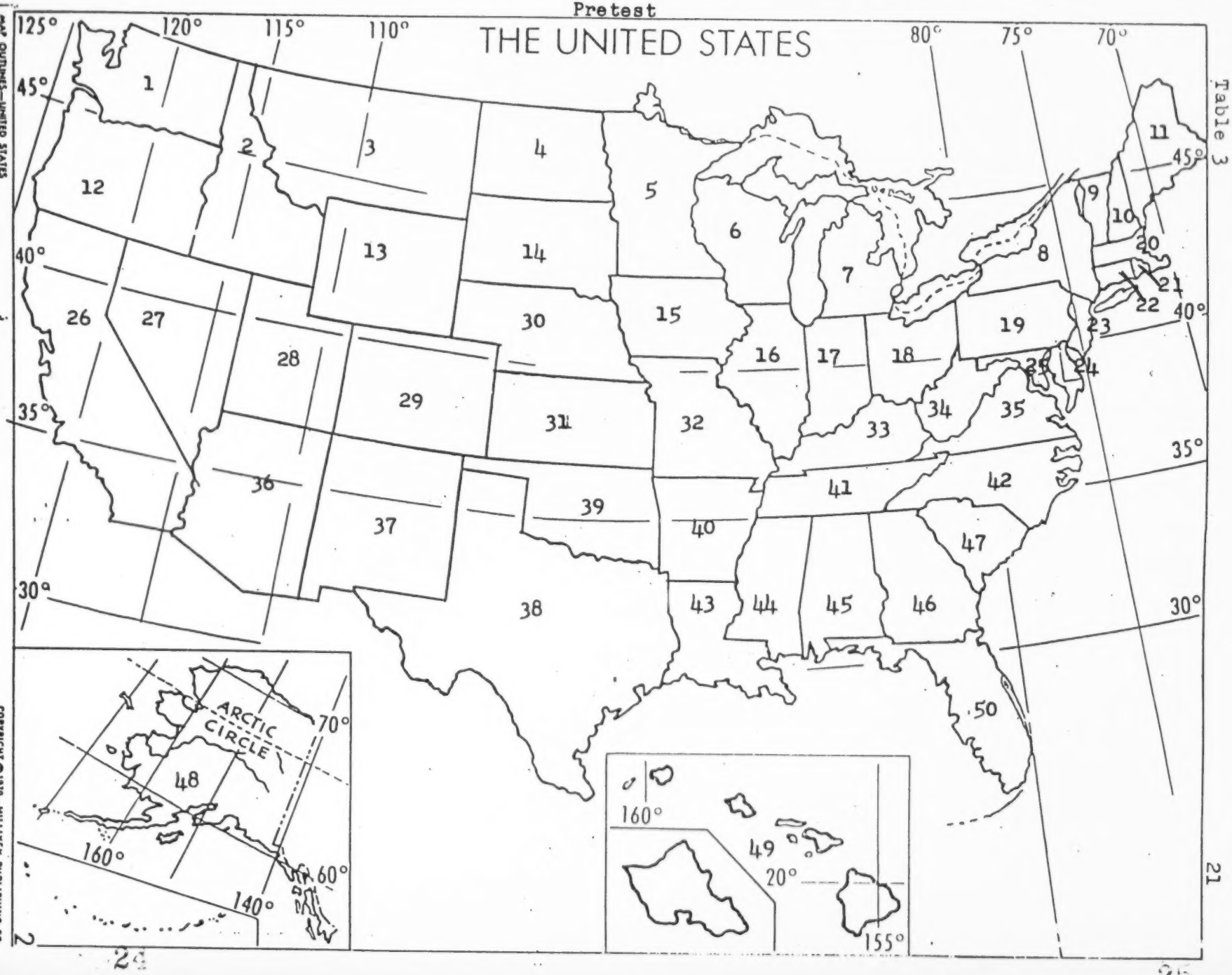

Table 3

MAP OUTLINES—UNITED STATES

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Table 4

Pretest

The UNITED STATES OF AMERICA

Your number____ Date___ Group___ Period___ Sex___

Match each number on the map by putting a number in each of the places below.

___Alabama
___Alaska
___Arizona
___Arkansas
___California
___Colorado
___Connecticut
___Delaware
___Florida
___Georgia
___Hawaii
___Idaho
___Illinois
___Indiana
___Iowa
___Kansas
___Kentucky
___Louisiana
___Maine
___Maryland
___Massachusetts
___Michigan
___Minnesota
___Mississippi
___Missouri
___Montana
___Nebraska
___Nevada
___New Hampshire
___New Jersey
___New Mexico
___New York
____North Carolina
____North Dakota
____Ohio
____Oklahoma
____Oregon
____Pennsylvania
____Rhode Island
____South Carolina
____South Dakota
____Tennessee
____Texas
____Utah
____Vermont
____Virginia
____Washington
____West Virginia
____Wisconsin
____Wyoming

eighth-grade students, who were enrolled in United States public schools, to be able to recognize the names, corresponding locations, and configurations of the various states within the United States.

Scoring procedure for world and United States tests

Test items were scored as either correct or incorrect. Each test was scored with a test template having the correct responses. All tests were scored by one individual, checked by a different person, and finally checked by the author.

Test Reliability

The Kuder-Richardson 21 procedure was selected for the computation of reliability because of the equivalence of test items, place names and relative locations. The test, in addition, measured the single trait of geographic place knowledge possessed by eighth-grade students participating in this study (Burns & Dobson, 1981). Pretest data (number of subjects, number of test items, and standard deviations) on all students were used for calculations. The results were $r = .90$ for the world pretest and $r = .90$ for the United States pretest. Test reliability was very high.

Settings

Schools and students for this study were selected from three settings: rural, transitional, and urban. It was

observed that three sites in distinctively different settings might be more representative of the general eighth-grade population and more generalizaole than would one site alone.

Rural Site

This site was intended to be representative of those students who live in environments which contain 26.3% of the United States population (Statistical Abstract of the United States, 1984). Those communities had less than 2,500 population. The particular county had a population of 6,700. The school contained grades four through eight and had 425 students, 110 of those were eighth-graders. Instructional practices were traditional.

Transitional Site

Transitional was the term selected to represent those communities which had populations between 2,500 and 25,000. Such settings are 28.3% of the United States populations (Statistical Abstract of the United States, 1984). The transitional school was located in a small town. The county had a population of approximately 25,000. The middle school was one of two in the county and had a student population of about 600 seventh, eighth and ninth-grade students, more or less evenly divided between grades. Instructional practices were traditional.

Urban Site

The setting of this school was inner-city in a community approximately 2,029,000 in population. Such settings account for 42.4% of the population in the United States (Statistical Abstract of the United States, 1984). The school contained grades six, seven and eight. Grade eight included 292 of the total school population of 829. Teachers and students in this school were participants in the Individually Guided Education (IGE) program.

Sample

Sample representativeness was judged by the author and a social studies education authority to be typical of many United States eighth-grade students attending public schools, in terms of class size, age variance, male/female ratio and site. Class sizes ranged from 16 to 33 with a mean of 25. Slightly more males than females participated in the experiment, 53.3% males versus 46.7% females.

Subjects at the rural site are described as follows: 58.7% upper and 41.3% lower economic status (based upon free and reduced lunch report); 5.5% black, 94.5% white, racial mix. Subjects at the transitional site are described: 80.5% upper and 19.5% lower economic status; 3% black, 96% white and 1% other. The urban site had students who were 6.2% upper and 93.8% lower economic status; 88% black, 9% white

and 3% other. It appeared that the populations of the different sites were quite different.

Findings

Two-way analysis of variance (ANCOVA) was used in the evaluation of test data (Nie, Hull, Jenkins, Stenorenner & Bent, 1982). Newman-Keuls post hoc procedure was then used to determine the significance of the differences betweens pairs of means (Linton & Gallo, 1975).

Groups

Hypotheses H_{01}, H_{02}, H_{03} and H_{04}, which generally state that there will be no significant differences among expeimental treatment groups for tests, is rejected. ANCOVAs indicated significant differences among treatment groups ($P<.0001$) on world posttest and delayed posttests, and on United States posttest and delayed posttests. Newman-Keuls comparison of experimental treatment produced significant differences ($p<.01$) between treatment groups (see Table 5).

World posttest means indicated that drill groups achieved the highest mean (32.14); activity groups achieved the next highest mean (27.88); and the control had the lowest mean (15.70). Mean scores on the world delayed posttest followed a similar pattern. The drill mean was 33.18; the activity mean was 25.54; and the control was 16.96.

Table 5

Mean Test Performance for Experimental Groups

World

Group	Not Adj. WPR	Not Adj. WPT	Adj. WPT	Not Adj. WDP	Adj. WDP
A Drill	15.74 (12.87)	35.00 (15.25)	32.14 (15.25)	34.33 (14.88)	33.18 (14.88)
B Control	14.48 (11.41)	16.58 (11.58)	15.70 (11.58)	17.25 (12.17)	16.96 (12.17)
C Activity	11.32 (11.08)	25.41 (14.36)	27.88 (14.36)	23.56 (14.09)	25.54 (14.09)

United States

Group	Not Adj. USPR	Not Adj. USPT	Adj. USPT	Not Adj. USDP	Adj. USDP
A Drill	20.93 (13.44)	41.81 (10.60)	41.04 (10.60)	39.59 (11.66)	37.79 (11.66)
B Control	19.91 (11.66)	25.01 (13.01)	24.73 (13.01)	25.21 (12.44)	27.34 (12.44)
C Activity	15.34 (12.83)	30.68 (12.96)	34.01 (12.96)	31.38 (11.23)	32.66 (11.23)

Note.

WPR = World Pretest

WPT = World Posttest

WDP = World Delayed Posttest

Adj. = Adjusted

( ) = Standard Deviation

USPR = U S Pretest

USPT = U S Posttest

USDP = U S Delayed Posttest

N = 264

United States posttest means were again highest for drill groups (41.04), next highest for activity groups (34.01) and lowest for the control groups (24.73). On the United States delayed posttest, means followed a similar pattern. Drill groups were highest (37.79), activity groups next highest (32.66), and control groups were the lowest (27.34).

Conclusion

The implications of the preceeding findings appear to be obvious. Drill instruction seems to have been the most effective way for teaching a geographic place vocabulary to eihth-grade students. Varied activities, though somewhat less effective than drill, appears to also be an effective instructional method for geographic place vocabulary.

Sites

Hypotheses H_{05} and H_{06}, which generally state that there will be no significant differences among experimental sites for posttests, is rejected. ANCOVAs indicated significant differences among sites ($p<.0001$) on both the world and United States posttests. Incomplete data from one of the sites prevented the use of delayed posttest information (see Table 6). Newman-Keuls comparisons of site means produced some significant differences ($p<.01$).

Table 6

Mean Test Performance for Experimental Sites

World

Site	Not Adj. WPR	Not Adj. WPT	Adj. WPT	Not Adj. WDP	Adj. WDP
1 Transitional	21.53 (12.75)	30.07 (14.99)	23.69 (14.99)	29.39 (15.20)	24.90 (15.20)
2 Rural	11.50 (08.41)	30.10 (15.90)	30.31 (15.90)	22.40 (15.48)	25.55 (15.48)
3 Urban	04.58 (05.04)	14.36 (11.00)	21.73 (11.00)	---- (----)	---- (-----)

United States

Site	Not Adj. USPR	Not Adj. USPT	Adj. USPT	Not Adj. USDP	Adj. USDP
1 Transitional	24.13 (12.86)	32.53 (14.49)	28.63 (14.49)	33.02 (14.14)	30.73 (14.14)
2 Rural	17.18 (11.24)	35.34 (13.18)	34.94 (13.18)	32.80 (12.25)	34.47 (12.25)
3 Urban	12.24 (11.66)	32.24 (14.45)	36.22 (14.45)	---- (----)	---- (-----)

Note.

WPR = World Pretest

WPT = World Posttest

WDP = World Delayed Posttest

Adj. = Adjusted

( ) = Standard Deviation

USPR = U S Pretest

USPT = U S Posttest

USDP = U S Delayed Posttest

N = 264

World posttest adjusted means were significantly different between the rural (30.31), and the transitional (23.69) sites; and the rural and the urban (21.73) sites. The urban and transitional sites were not significantly different.

United States adjusted posttest means were significantly different between the urban (36.22) and the transitional (28.63) sites. The rural site mean (34.94) was also significantly greater than the transitional site mean (28.63). There was no significant difference between the rural and urban sites.

Conclusion

The mixed rusults of analysis for sites did not permit a firm position concerning sites. Nonetheless, some observations may be appropriate. Mixed results would appear to indicate that subjects at all sites are capable of learning when taught by methods utilized in this study. Mixed performance may indicate that other factors than site may have influenced achievement. Performance at sites definitely improved from pretests to posttests.

Interaction

Hypotheses H_{07} and H_{08}, which generally states that there will be no significant interaction among experimental sites and groups, are rejected. ANCOVAs indicated significant interaction among treatment groups and sites ($p<.0001$) (see Table 7 and Table 8).

Conclusion

Treatment groups achieved more than might have been expected when their pretest means were considered. It has been my experience that many educators feel that student achievement might be linked to economic status. Consideration of the different populations of the three experimental sites leads toward the expectation that the transitional site (80.5% upper economic status) should have had the highest achievement; the rural site (58.7% upper economic status) should have had the next highest achievement; and the urban site (6.2% upper economic status) should have had the lowest level of achievement on both the world and the United States posttests.

Test results, however, were unexpected. The rural site performed best on the world posttest. On the United States postest the results were a reversal of what might have been expected. Highest achievement was at the urban site; next was the rural site; and lowest achievement was at the transitional site. I suspect that this data may be providing

Table 7

Interaction

United States Posttest

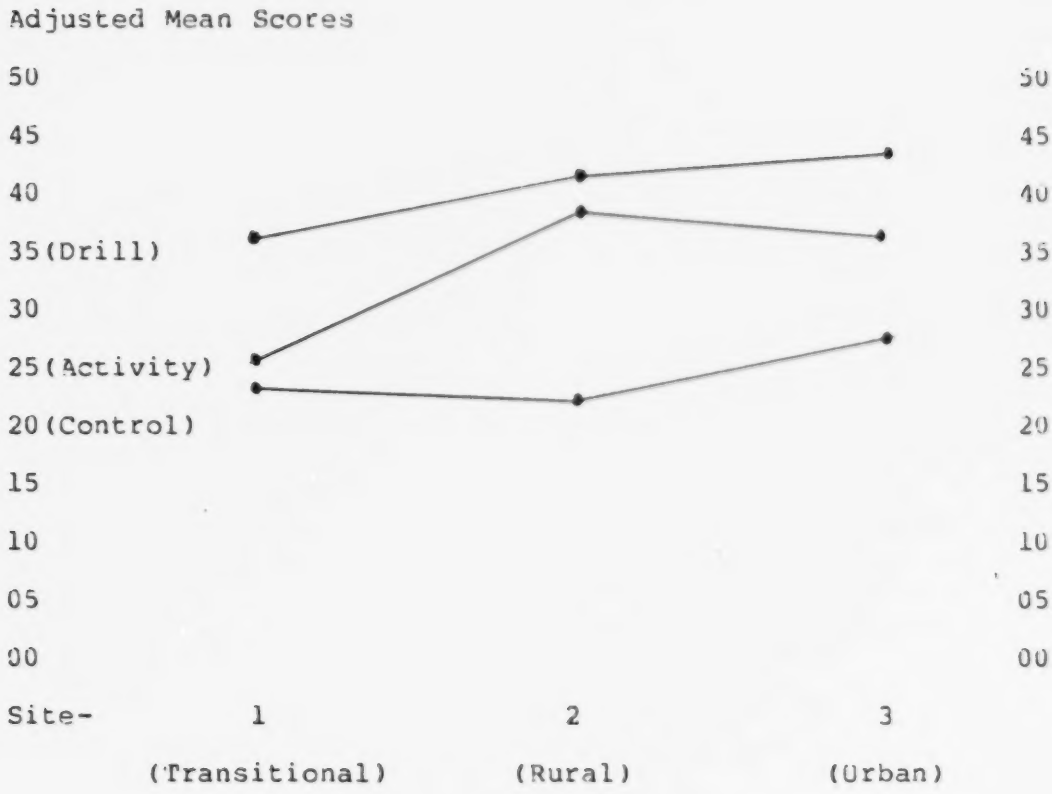
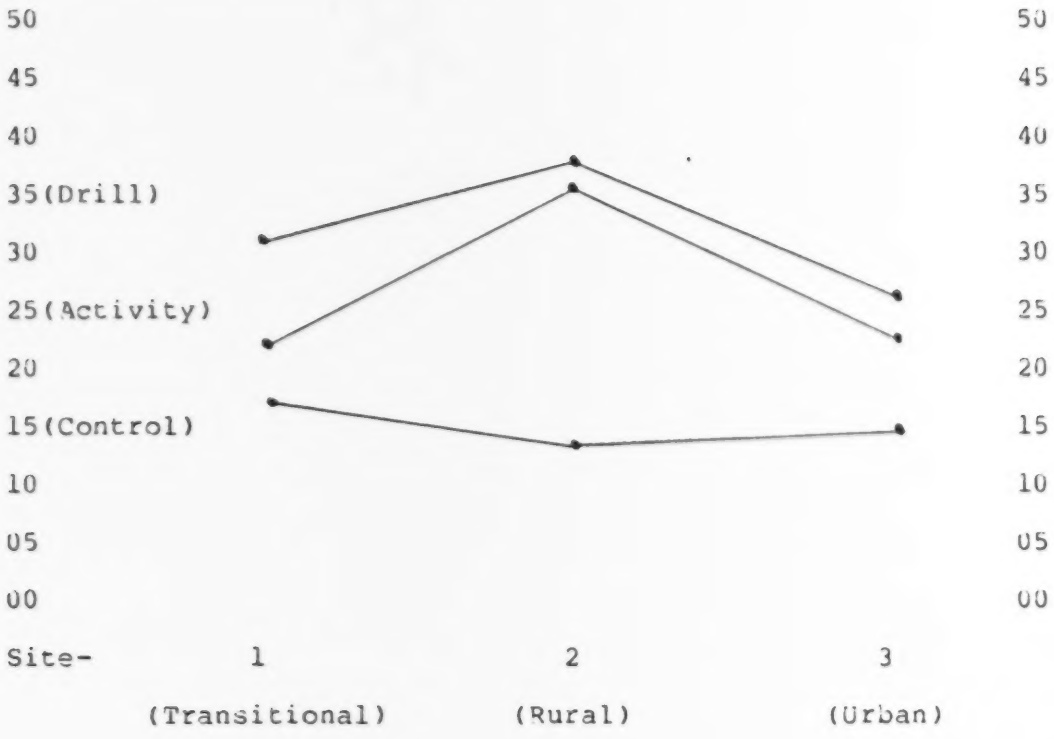


Table 8

Interaction

World Posttest



evidence that students may not be very different from one economic status to another, at least in regard to academic achievement potential. Perhaps those students who participated in this study were provided with simple, understandable, learning goals and simple, understandable methods for achieving those goals.

Summary

Near the beginning of this century Rugg and Hockett (1925) exposed the poor state of student's ability to locate obvious geographic places. They also made some observations about the possible causes and solutions. Their observations may have been absolutely appropriate. This study may have shown that when instruction is discriminate, learning occurs. As suggested by Rugg and Hockett (1925), this study provided for planned repetition and varied learning situations; both of which were successful.

This paper has been concerned with the comparison of two methods, of teaching a geographic place vocabulary to eignth-grade students, traditional drill and varied activities. The study which pursued the oroblem has shown that it is practical to teach a geographic place vocabulary to eighth-grade students, and it has shown that both methods of instruction are effective. Drill, was apparently the better of the two methods. Perhaps sound experimental investigations could guide teachers, to a few better ways for teaching most students certain types of curriculum material.

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